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CORVALLIS REPORT

USDA/ARS

National Clonal Germplasm Repository

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Dr. Maxine Thompson, Visiting Scientist
Dr. Francis J. Lawrence, Collaborator
Dr. Mel Westwood, Collaborator

Personnel Update

Kim Hummer

In August our Biological Technician - plant propagator, John Orlowsky, left us to get married, take a bike trip through Europe and live happily ever after in Canada. We wish him the best of luck in his endeavors. Because of the federal-hiring freeze after John left, we were unable to refill his position until mid-December. Vonda Peters was selected and will take on the tasks of propagation, distribution, and maintenance of plants in the greenhouse and screenhouse. We're thankful that she's on board for the scionwood distribution season.

We had been without a secretary from last Spring until the end of September when personnel finally gave us permission to recruit a replacement. Judy Flynn came on board and has been getting our front office back in order and keeping our staff in line. We welcome her assistance.

Dr. Maxine Thompson, famed plant explorer who has roamed Pakistan, Russia, Ecuador and other corners of the world, will be starting soon as a Visiting Scientist at our facility. She will study our *Rubus* collection including counting chromosomes and examining morphologic and physiological differences. She will take a critical eye to our taxonomic designations and assist in obtaining new *Rubus* for our collection.

Dr. Henrietta Chambers' title will change to Visiting Scientist although her present duties will continue as Assistant Curator of the *Mentha* collection. We're glad to have her

excellent taxonomic expertise.

Both Dr. Whitey Lawrence, Retired USDA Fruit Breeder, and Dr. Mel Westwood, Emeritus Professor at Oregon State University, continue as active collaborators for our facility. We are grateful to have access to their vast knowledge and experience.

New Accessions

Kim Hummer

During the past six months we have added 191 new accessions to our collection. These include native American, Russian, South American and European germplasm.

We received mutant *F. vesca* clones generated from Scott Williamson's graduate program at University of New Hampshire. In the fall I collected native *Fragaria* in Maine, New Hampshire and Vermont. Joseph Postman provided us with 28 virus-negative pear clones from infected clones in our collection. Drs. Maxine Thompson and Calvin Sperling brought back *Ribes* species seed from their collecting trip in the Soviet Union. We also received *Ribes* and *Rubus* from Drs. Jim Ballington, Jim Leutyn, and Maxine Thompson's collection expedition to Ecuador. When Dr. Nick Vorsa had the opportunity to visit Sakhalin Island, USSR, he collected many *Vaccinium* species and some *Rubus* for our collection. One of the species, *V. praetans*, has a potent pungent aroma that is very penetrating. With help from Drs. Smagula, Pollard, Pellett and others I collected *V. macrocarpon* wild large fruited cranberries from native bogs in Maine, New Hampshire and Vermont. While in Maine Dr. Smagula provided us with Lowbush blueberries of both *V. angustifolium* and *V. myrtilloides*. Dr. Don Mairs sent more Maine cranberry selections after my return.

After some discussion among curators within the germplasm system it was decided that our facility will take on four additional genera: *Arbutus*, *Ceanothus*, *Escallonia*, and *Holodiscus*. We have begun to obtain germplasm of these new genera. We thank each donor who has provided us with new germplasm this past year. Not all donors could be mentioned in this note.

Medlar Collection

Joseph Postman

Recently received accessions have brought the number of European medlar (*Mespilus germanica*) clones represented at the Corvallis repository to 14. Included are the cultivars Royal, Nottingham, Breda Giant, Giant Russian and several selections from Italy. *Mespilus* is a small, deciduous tree in the family *Rosaceae* and is closely related to pear (*Pyrus*), and hawthorn (*Crataegus*). *Mespilus* has been cultivated since ancient times for its edible fruit which, as Alfred Rehder so delicately describes, "after incipient decay becomes soft and of agreeable acid taste." This after-ripening, known as bletting, is similar to the ripening process for the American persimmon. The blotted fruit has flesh with the consistency of thick apple sauce and a taste similar to a pear. The varieties grown today, including Nottingham and Royal, have been grown for many centuries. The medlar tree blooms and bears fruit when very young. Often a newly grafted scion will bloom and produce fruit the year it is grafted. Medlars have been grown on *Crataegus*, *Cydonia*, *Malus*, and *Pyrus* rootstocks, and may have potential as a rootstock or dwarfing interstock for apples or pears. Dr. Phipps of Ontario, Canada has recently described an additional species of Medlar, *Mespilus canescens* native to Arkansas. We have requested germplasm of this new endangered taxon.



Mespilus germanica L.

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Oregon State University Establishes Microbial Germplasm Database

Joseph Postman

Larry Moore and Joe Hanus, in the Department of Botany and Plant Pathology at Oregon State University, have developed a Microbial Germplasm Database and Network (MGDN) which offers scientists working with many different types of plant-related microbes an opportunity to locate cultures and expertise. MGDN is based on responses to a survey by 400 scientists, and documents the existence of over 380,000 accessions. Individual accessions are not itemized in the database. The database seeks to link users with collections of specific entities ranging from plasmids to viruses to fungi to nematodes. The MGDN staff periodically publishes an informative newsletter. For more information or to get on their mailing list contact Moore or Hanus at the Department of Botany and Plant Pathology, Oregon State University, Corvallis, OR 97331.

Pyrus Identity Verification

Joseph Postman

Each year, Dr. Mel Westwood, retired Oregon State University Professor, internationally respected pear expert and one of the founding fathers of the clonal germplasm repositories, donates some of his time in the continuing effort to eliminate misidentified trees from our *Pyrus* germplasm collection. In the early days, Mel depended on his keen observations of foliage, stem and bud characteristics, as we had no fruiting trees in the field. Subsequent years provided the opportunity to verify his earlier identity diagnosis as the orchard came into bearing. While most of the flagrant taxonomic errors have long since been reconciled, each year brings a new crop of trees waiting to pass the master's inspection. You wouldn't want to be a hybrid between *Pyrus calleryana* and *Pyrus betulifolia* masquerading as pure *P. betulifolia* when Dr. Westwood marches down the row. Trees that have successfully evaded detection by lesser pear "experts" have been known to wilt as Mel approached! This year saw the elimination of more than a dozen impostors, including a few overgrown rootstocks, one or two propagation errors and the usual array of trees that arrived at the repository with a label that was not an accurate reflection of the tree's authentic species identity. THANK YOU Mel for continuing to keep our collection up to snuff, and helping us novice pear taxonomists to learn the ways of the world.

Viruses in NCGR Mint Collection

Joseph Postman

An unidentified virus has been detected in about two dozen mint accessions in

the NCGR collection. This virus causes bright yellow vein banding in one clone of *Mentha arvensis* (= *M. gentilis*) and moderate to very mild symptoms in other clones. Systemic symptoms develop in *Chenopodium quinoa* plants several weeks after sap inoculation. Plants free of the vein banding symptoms have been produced when shoot tips were propagated from heat-treated plants. This is probably the same virus that Tucker and Fair (1972, Taxon 21:209-210) attributed to a variegated mint that they published as *Mentha x gentilis* L. 'Variegata'. Richard Stace-Smith of Agriculture Canada, Vancouver, was able to purify 30 nm diameter, spherical virus particles from inoculated *C. quinoa* plants. He also determined the molecular weights of the two protein subunits, and prepared antiserum against the virus. Several mint clones with vein banding symptoms at NCGR produced a positive reaction when this antiserum was used in ELISA. This is probably a new virus for which we will be proposing the name "Mint Veinbanding Virus".

Mint has recently been added to the long list of genera that are hosts for tomato spotted wilt virus (TSWV). The virus has been detected in several commercial mint fields up and down Oregon's Willamette Valley. TSWV is spread by the western flower thrips, *Frankliniella occidentalis*, and has been causing much anguish to the U.S. bedding plant industry. Samples were randomly collected from our *Mentha* germplasm collection, and tested for TSWV by Richard Samson and Tom Allen at Oregon State. They used both ELISA, and a new, more sensitive nitrocellulose blot seroassay, and found the dozen or so samples to be negative for this virus. *Mentha* is the only NCGR-Corvallis genus that is known to host tomato spotted wilt, and with additional testing next spring, the repository may be one of the few sources of TSWV free propagating material available.

Field News

Joe Snead

This winter newsletter creates a time for reflection. This year we are on the eve of our ten year anniversary. I look back at all the changes over the years and see things haven't slowed down. More changes are occurring now that will prepare us for the next ten years and beyond. Our largest change has been the acquisition of forty-two acres located about a half mile down Peoria road toward Corvallis. The new farm is an exciting challenge since our requirements for plot work are quite different than past uses. Plans are being developed for plot layout, road system, irrigation system and fencing. We hope to have the first stage of our irrigation system installed for some spring planting.

We were also able to purchase some larger farm equipment. This fall we received a new fifty-five horse tractor with backhoe, loader, subsoiler, and limb chipper. This equipment complements our smaller equipment and will make it easier to work the larger acreage.

Changes at our established site continue also. The blueberry field now has drip irrigation in addition to the overhead sprinklers. The

cranberry field is filling out and taking shape. Next season we can start taking some evaluations on these. A new *Fragaria* field is in place with many new accessions represented. The new *Pyrus* rootstock planting is being planted on the hillside entering the *Pyrus* field. Our *Ribes* field is quickly filling up and plans are being tossed around on how to accommodate future expansion. The minor genera planting is being considered for a move to the new property. The field situation is busy as ever and gearing up towards a larger future.

I hope your holiday season was joyous and I wish you a Happy New Year.

New Farm

Joe Snead

Our new property is generally rectangular but has two opposite corners taken out. The layout is oriented on a north and south basis. At the southern end is a swale that might flood for short periods some winters. On our blueprint eight acres has been set aside for tree crops with the wettest area for *Pyrus*. Only a small section might flood and this would be planted last. The central part is mostly flat with some gentle undulation. This is the largest area, has the best soil and will most likely grow small fruits. The northern end is divided between old clearcut forest and some lower gravelly area. About seven acres reside in old clearcut forest that has been overgrown by brush. This area might become our new minor genera block. We have been clearing the brush and locating the old stumps. We plan to develop this area into an informal planting area for minor and related genera. The other northern part is planted to about five acres of peppermint. This soil is poorest and has a good well, but we need to install electricity. About two acres of old orchard surround the old homes. Almost all of the old buildings will be taken down and the old trees removed. This will open up some additional planting space.

This next year will be very busy for us. We hope to have our road system complete, new fencing installed, and the first stage of an irrigation system operational. We wish to start planting several different genera. If you get a chance come visit our new farm.

Notes From The Headhouse

Vonda Peters & Jim Chandler

The major change taking place at this time is the removal of *Pyrus* and *Humulus* from the screenhouses. These actions liberated two (of six total) screenhouses and made them available for our ever-increasing small fruit collection. Pears have no known insect vectors and do not require protective screen to maintain a virus-negative status. We will maintain the primary collection in the field and continue to build the *in vitro* collection. We house the non-hardy collections in the greenhouse. Almost all of our hops collection has been *in vitro* cultured in our lab; the remainder will be cultured this spring. The accessions previously held in our

screenhouse are now maintained by Dr. Haunold. The *Vaccinium* and *Ribes* will each have their own houses (they previously shared one). The *Fragaria* collection will remain in its own screenhouse and the *Rubus* will now occupy two.

In preparation for these changes, benches constructed of pressure treated boards and cinder blocks were built in the *Pyrus* and *Humulus* screenhouses. Now all screenhouses are equipped with benches. We are planning to move the plants to their new locations in late January (1991). The greenhouses are pretty empty this time of year as we have moved everything but the non-hardy to the screenhouses to go dormant to receive the necessary chilling.

All the screenhouses have plastic on them and should be ready for cold weather. We have had a "20 year low" cold snap and more cold weather is predicted for the Pacific Northwest. Our shipping area has been improved so that we have higher, more convenient counters to work on and also improved lighting. A seed germinator was purchased this fall. We will use it to generate seedlings for species blocks at the new property as well as new plants from seed accessions. New hinged doors were purchased to replace the sliding doors at the entrances to the four greenhouses. These new doors don't waste useful wall space and are self-closing as well. They are also very colorful (come take a look!). An autoclave has been installed in the headhouse. We will use this to sterilize all material (clippings, dead plants) from quarantined plants prior to disposal. A dot matrix printer was installed in the headhouse office. It has been very useful for printing inventory lists, pending plant request lists, etc. We are in the process of locating and installing a large sink to wash pots. The old method of steaming was inconvenient, more costly and sometimes melted the pots!

Tissue Culture

Barbara Reed and Carolyn Paynter

Spring and summer collecting produced an increase of nearly 500 accessions in the 4°C in-vitro storage collection. As we collect accessions which have never been cultured they are evaluated for growth and screened for the proper medium. Storage occurs as soon as possible. This may vary from 3 weeks for vigorous accessions to 6 months for those which are difficult to multiply. In all cases we try to use the lowest possible level of growth regulators to provide modest multiplication levels. Ten plants of each accession are stored and are inventoried at three to six month intervals.

Analysis of the *Fragaria* in-vitro collection was completed in May. Glass tubes and plastic boxes were compared with gas-permeable, heat-sealed plastic bags for use in cold storage. A comparison of containers over a 15 month period showed that the condition of the plants was similar in all containers, however there were major differences in contamination rates. Loss due to contamination was 50% and 30% in tubes and boxes respectively while no accessions in bags were lost. Plants in the bags are in equal condition when compared to boxes

and tubes and are superior for excluding contamination and ease of handling and storage.

A group of 63 *Pyrus* accessions stored in 20 mm tubes during 1987 were repropagated this summer. This represents 48% survival of the plants originally stored. The accessions were multiplied and restored in bags. Additional plants of each accession were propagated to use in rooting trials and cryopreservation screening.

Graduate student, Xiaoling Yu, has begun working on *Corylus* micropropagation. She is concentrating on initiation and multiplication. She has collected and started explants and is exploring the effects of different plant growth regulators. Ms. Yu has taken over the care of the entire in vitro *Corylus* collection.

Cryopreservation

Barbara Reed

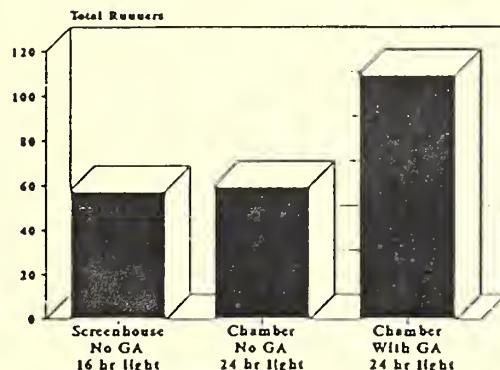
Pyrus accessions are being screened using a standard cryopreservation technique developed earlier for five *Pyrus* species. Studies comparing cold hardening with abscisic acid (ABA) for pretreatment of *Rubus* meristems before cryopreservation are also in progress. With the accessions tested, ABA does not appear to be as effective as cold hardening. The addition of ABA to cold hardened plants produces increases in survival of some genotypes but not others. Additional tests are in progress. Preliminary tests are being run using vitrification and dehydration procedures.

Inducing Runnering in Strawberry Plants

Carolyn Paynter

Many *Fragaria* accessions produce few runners, making it a challenge to obtain enough plant material for initiation into tissue culture and filling requests for plant material. In June 1990, some *Fragaria* plants that were producing few or no runners were chosen from the screenhouse for an experiment on the use of GA₃ spray to increase runnering. At six weeks final data were taken from three groups of plants:

RUNNER INDUCTION



Overall results show a slight increase in runnering when plants are placed under 24 hr light conditions and a large increase in runners produced when plants are sprayed with 500 ppm GA₃ solution and grown in the 24 hr light conditions.

Fragaria accessions varied in their response to the GA₃ treatment. The plants used can be divided into three categories.

1. Day neutrals - Two produced no runners in the screenhouse, while two others produced one runner each. The growth chamber improved these rates and plants with the GA₃ treatment made significantly more runners (5-12) than either of the other treatments.

2. June bearers - In four out of five accessions tested, plants from the growth chamber treatments produced more runners than plants grown in the screenhouse. The accessions tested were variable as to which growth chamber treatment was the best.

3. Alpine - GA₃ produced some improvements over the screenhouse plants. Growth chamber plants with no GA₃ did not runner at all.

Elimination of Bacterial Contamination in *Mentha* Cultures

Pat Buckley

Internal bacterial contamination, present in some of our *Mentha* collection, has interfered with in vitro storage and recovery of cultures. Gram staining revealed gram-negative, rod-shaped bacteria which multiply rapidly when inoculated into liquid *Mentha* growth medium with the pH adjusted to 6.9. To free plant material from infection, small shoot tips were placed in the liquid medium to which one or more antibiotics had been added. After a treatment period of 5 to 7 days under growth-promoting conditions, the tips were removed to semi-solid agar medium and observed for several weeks for presence of bacterial growth.

Because of their known bactericidal activity against gram-negative organisms, streptomycin and neomycin were the antibiotics of first choice. For resistant bacteria, treatment with gentamicin is being tested. The results indicate that 1) it is possible to detect bacterial contamination very early in explanted material held in liquid medium at a higher pH than is usual, and 2) that antibiotics appear to be useful in freeing some plant material from constant infection. Treated material will be retrieved from cold storage and retested in order to ascertain whether treatment was totally effective or merely reduced the population of bacteria.

GRIN News

Donna Gerten

The Germplasm Resource Information Network (GRIN) database now has records available for all NCGR accessions. Records for the genus *Mentha* were prepared and loaded in November 1990 and the local NCGR database and the GRIN are now in synchrony.

New accession records and inventory record additions and updates will continue to be performed on a quarterly basis, as will distribution and cooperator records.

This autumn, field evaluation data for *Ribes*, *Corylus* and *Pyrus* were loaded to GRIN as observation records. Some evaluation data for *Vaccinium* was recorded this year and will be loaded to GRIN this winter. Additional *Corylus* phenological data will be loaded this winter as well. A large backlog of *Pyrus* evaluation data remains to be entered to computer and loaded.

Approximately 1100 NCGR *Pyrus* accessions from our collection were assigned Plant Introduction numbers this year. We extend thanks to the Plant Introduction Office staff and to the GRIN DBMU's Quinn Sinnott for their efforts in this endeavor on our behalf.

Integrated Pest Management

Bill Doerner

Changes are occurring which will significantly strengthen our IPM program. In the greenhouses, we have separated the plant materials which are most susceptible to insect transmitted viruses from those which are not at risk. The constant threat of virus infection from insect feeding remains the biggest constraint to implementation of our greenhouse IPM program. By separating the virus susceptible plants (i.e. small fruits genera) from the other plants, we hope to remove some of the barriers which limit our IPM program in the greenhouse. A key objective is to reduce the amount of insecticides applied in the greenhouse while maintaining acceptable plant protection.

We have completed construction of benches in our screenhouses so that all plant material is now off the ground. The new benches have really made plant maintenance much easier, and our weed problems have been reduced substantially. As we continue our transition towards an IPM system for the repository, I am encouraged by the cooperation I have received from our staff. It is not always easy to accept change but we must continue to search for solutions by experimenting and modifying our existing program. Change is a vital part of any successful IPM program.

In preparation for the 1991 season, we are revising our pest management program for the pear collection. Pending approval of an experimental use permit, we will begin using a mating confusant technique for control of codling moth *Cydia pomonella*. This new technology is being made available for the first time by Consep Membranes, Inc. a company in Bend, OR. This new product is called CheckMate-CM, is registered by the E.P.A. and represents an alternative to conventional

insecticides. The idea is to confuse the male codling moths by saturating the orchard with "the female's sex pheromone". Stimulated by the synthetic mating pheromone, the male moths are "tricked" into searching where no female exists, thereby reducing the probability of mating. This new technology offers great potential for IPM programs. If this product is successful, we could eventually eliminate the insecticide sprays we are now using for control of this pest at the repository.

Maintaining

Raymond Gekosky

Now that daylight is near it's minimum length, the recently completed light post project adds a new dimension to entering and exiting the repository. Along with our enhanced nightly exposure to the lock and gate, the new light illuminates our facility's identification sign.

In the headhouse we have just put the finishing touches on our new greenhouse doors. Since the doors are smaller this required some wall frame extension along with considerable finishing to have a professional look. The new doors will help with access and our pest management program. When entering or exiting, the doors will automatically close and form a better seal. We have received four new greenhouse swamp coolers. They will replace our ten year old coolers which have needed constant repair and maintenance. Installation should begin in the near future and eventually all of the coolers will be replaced.

In the field I have recently finished pruning of the *Rubus* collection with trellising yet to come. We have built and installed more cranberry boxes and have planted more *Vaccinium* (cranberries and blueberries), *Rubus*, *Ribes*, and *Corylus*.

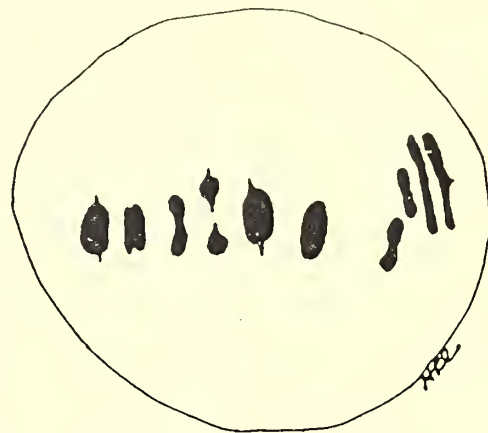
Mentha Collection

Henrietta Chambers

The major effort on the mint collection for the second half of 1990 has been a chromosome survey. Over 50 accessions have been counted. All of these species have published counts, but now we can safely enter the numbers in the database for each of our accessions. The best materials for counting chromosomes are the young anthers in flower buds which are undergoing meiosis, but some clones are male-sterile and mitosis in root-tips are used. Counts have been obtained for at least one accession of the following species: *M. arvensis*, *canadensis*, *cervina*, *gattefossei*, *japonica*, *longifolia*, *pulegium*, *requienii*, *x rotundifolia*, *spicata*, *spicata* (rugose form-sometimes called *cordifolia*), *suaveolens*, *x villosa* var. *alopecuroides*, and a few hybrids. One interesting result of the counts in Pennyroyal (*M. pulegium*) showed the presence of three ploidy levels in clones collected in the Willamette Valley of Oregon. This finding could be important in controlling this troublesome pasture weed since the triploid clones are seed sterile.

In early December we received over 20 *Mentha* clones from Dr. Arthur Tucker which represent accessions of *M. canadensis* and 8

artificial hybrids between *M. longifolia* and *M. arvensis*, the putative parents of *M. canadensis*. We will be examining the meiotic behavior and attempting to obtain chromosome counts of each clone.



Cranberry Collecting

Kim Hummer

The large fruited cranberry, *Vaccinium macrocarpon* Ait. is native to Northeastern North America. The small cranberry, *Vaccinium oxycoccos* L. is native circumpolar boreal. I was fortunate this past fall to "meet" some of these cranberries in their natural settings in Maine, New Hampshire and Vermont. The original home of the large fruited cranberry, the kind we see at our festive Thanksgiving dinner, is a swamp or on the edge quaking bogs where tufts of sphagnum mat together below leatherleaf and Labrador tea. The cranberries are prostrate on the sphagnum under shrubs on the bog edge. They do not stray out to open light in the middle of the bog. The small fruited cranberry can reside in drier conditions, upland along open edges of beech-birch-maple woods in the east.

I had success finding the small fruited cranberry in Maine, but thus far have not found native material in Oregon, although native sites have been reported in the Northern Cascades and on the coast. Our search for cranberries will continue this summer so that our collection will better represent the native fruits.

Cranberry Cultivars

Kim Hummer

We have established a cranberry variety plot near our building complex. We are growing the cultivars in 3x5' plots in an upland setting. We have overhead irrigation for frost protection. Some cranberry cultivars are 150 years old. Many are selections made directly from wild or native American *Vaccinium macrocarpon* Ait. Others were developed in Massachusetts, New Jersey, Wisconsin, Oregon, Washington or through the USDA cranberry breeding program, which was active from the 1930's through the 1950's.

With the addition of recent acquisitions from Carolyn Demoranville of the Massachusetts Experiment Station and D.M. Boone of Wisconsin we have 39 cultivars, 16 native selections from 7 states, including a yellow fruited mutant of *V. macrocarpon* from Maine. We have 6 accessions of *V. oxycoccos* L. the small fruited cranberry, and 29 accessions of *V. vitis-idaea* L., mountain cranberry or lingonberry.

We plan to increase our collection as we find additional cultivar sources.

Upcoming Meetings

Kim Hummer

The Pear Crop Advisory Committee will meet in Corvallis on February 19 & 20, 1991. This meeting will be held in conjunction with the Northwest Pear Research Meeting. Evaluation of the pear collection, improved descriptors, and new germplasm to obtain will be discussed.

We will host the W-6 Technical Committee Meeting in Corvallis, June 18-20, 1991. In conjunction with this meeting on Wednesday, June 19, 1991, we will have a salmon dinner celebration honoring ten years of clonal germplasm. Our facility was dedicated ten years ago in May 1991. We invite all our collaborators to join in our celebration of this event.

On July 9-10, 1990, we will host the NCGR Technical Advisory Committee Meeting. Discussion of the past ten years of clonal germplasm management and planning for the next ten years will be on the agenda. We will tour our recently purchased property and make plans for development of the collections.

Curator's Corner

Kim Hummer

I recently participated in a panel discussion of the Genetics and Germplasm Working Group at the American Society for Horticultural Science meeting in Tucson, AZ. This discussion was hosted by Dr. Mark Widrechner, USDA/ARS Horticulturist and concerned "Building bridges to preserve germplasm: Non-governmental organizations and the National Plant Germplasm System." The 1 1/2 hours allotted to the workshop went by very quickly. By the end of the discussion period one could sense that almost everyone in the room had strong comments and opinions to convey on the topic of governmental and non-governmental interactions concerning preserving germplasm. These comments could not be expressed because time ran out. The governmental:non-governmental debate concerning germplasm preservation is a hot issue.

Non-governmental groups and individuals offer frequent suggestions and criticism, expect easy direct results, and are unaware of the ramifications of a seemingly simple suggestion or the difficulty of implementing new ideas. Governmental officials can become defensive of criticism because they feel bound by regulations, budgets and tradition.

When conflict arises, both sides should realize that genuine concern for preservation of

plant genetic resources is a COMMON bond, though viewpoints on how to achieve this goal may differ.

Our site has very positive rapport with the non-governmental sector including private companies, non-profit organizations, amateur and hobby groups, and highly motivated individuals. These folks have located cultivars for our collection that were thought to be extinct; they provide information on plant evaluation from the backwoods of Tennessee to sunny California; they are familiar with "raw" species germplasm and have "dabbled with" or are "obsessed with" (depending on the individual) plant breeding for their environment.

We in the National Plant Germplasm System are charged to collaborate and distribute plant germplasm to "valid users." When private companies, non-profit organizations, and others seek our germplasm is their research any less "valid" than those in the public sector? Our traditional collaborators incorporate raw germplasm into improved varieties and cultivars to improve crop yield, disease resistance, pest tolerance, and environmental tolerance.

While James (1990) reported 1.1 FTE of public pear breeding effort, a recent ASHS newsletter showed a picture and talked about "25 pear breeders and researchers in North America" who attended a recent meeting. Fruit breeding continues not only through public FTE assignments but through part-time interests. We need to recognize that the composition of our collaborators is moving from the public to the private sector, and interact and distribute plant material accordingly.

The clonal repositories were established as centers for plant genetic resources for the assigned fruit, nut, and ornamental genera. Our mandate specifies the preservation of standard clones, i.e., specific combinations of genes, in addition to collections representing world species variability. To accomplish this the repositories should also develop and accumulate a central "library" (in a broad sense) for assigned genera including not only written references, but herbarium specimens, isozyme patterns, RFLP analyses, gene maps, photographs, and other pertinent taxonomic and evaluation information.

In this age of public relations, we in the federal germplasm system should contemplate this thought from Liberty Hyde Bailey: "Most horticulturists are inclined to focus all their attention on commercial growers. That is a mistake. Never neglect the amateur for one reason. His vote counts."

Small Fruit Research Center

Kim Hummer

Plans for a small fruits research center in the Pacific Northwest are in the governmental mill. This research center will include a combined effort of USDA/ARS and State Agricultural Experiment Stations of Oregon, Washington and Idaho.

For Fiscal Year 91, \$225,000 was appropriated to USDA/ARS for planning to construct a building to house the small fruits

research center. This building will be built on property attached to the present USDA/ARS Horticulture Crops Research Center on the OSU campus. In addition, \$125,000 was appropriated to the combined State Agricultural Experiment Stations of Oregon, Washington and Idaho. The station directors will be meeting in late January to determine how these funds will be applied.

No new salary dollars were appropriated this year for a permanent replacement for the Dr. Lawrence Small Fruit Breeder position. USDA/ARS has hired a post doctoral candidate as a temporary replacement. Dr. Margaret Stahler was recruited and will begin work in this capacity at the end of February, 1991.

Publications

- Hummer, K.E. 1989. *Rubus* Germplasm at the National Clonal Germplasm Repository. *Acta Horticulturae* 262:25-27.
- Hummer, K.E. 1990. Interstate Restrictions on Movement of *Ribes* Germplasm. *Fruit Varieties J.* 44(4):194-197.
- Hummer, K.E. 1990. *Fragaria* at the National Clonal Germplasm Repository at Corvallis. *Proceedings of the 3rd Annual North American Fragaria Conference*. In Press.
- Postman, J.D. 1989. Incidence of Viruses in the U.S. National Clonal Germplasm Repository *Ribes* and *Rubus* collections. *Acta Horticulturae* 262:217-222.
- Reed, B.M. 1990. Multiplication of *Rubus* Germplasm in vitro: A screen of 256 accessions. *Fruit Varieties Journal* 44(3):141-148.
- Reed, B.M. 1990. Survival of in vitro Grown Apical Meristems of *Pyrus* Following Cryopreservation. *HortScience* 25(1):111-113.

Abstracts

- Hummer, K.E. 1990. How Curators Obtain Information on Germplasm Held Outside of the National Plant Germplasm System. *HortScience* 25(9):1179.
- Hummer, K. 1990. The status of *Pyrus* Germplasm in the U.S. *HortScience* 25:1142.
- Hummer, K.E. and D. Gerten. 1990. Bloom and Ripening of *Ribes* in Corvallis, Oregon. *HortScience* 25(9):1109.
- Postman, J. and B.M. Reed. 1990. Effect of Elevated CO₂ and Culture Medium on the Survival of in vitro *Rubus* Plants During Thermo therapy. *American Phytopathological Society Annual Meeting*, August 1990 in Grand Rapids, Michigan.
- Reed, B.M. 1990. Cold Storage of in vitro Fruit and Nut Germplasm. VIIth International Congress on Plant Tissue and Cell Culture. Amsterdam. June 24-29.
- Reed, B.M. 1990. Cold Hardening vs ABA as a Pretreatment for Meristem cryopreservation. *HortScience* 25(9):1086.

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